RESPONSES TO
OHIO ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON THE
INTEGRATED ENVIRONMENTAL MONITORING PLAN
REVISION 4, DRAFT FINAL

FERNALD CLOSURE PROJECT
FERNALD, OHIO

JANUARY 2005

U.S. DEPARTMENT OF ENERGY

RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY COMMENTS ON THE INTEGRATED ENVIRONMENTAL MONITORING PLAN REVISION 4, DRAFT FINAL

GENERAL COMMENTS

1. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: General Pg #: NA Line #: NA Code: C
Original General Comment #: 1

Comment: Throughout the document references are made to the elimination of air monitoring stations (particulate, radon, TLD). The elimination of these sampling locations is premature and should be implemented at the end of CY 2005. There is reasonable uncertainty in DOE's schedule that precludes the elimination of air sampling stations. DOE must provide a detailed plan that justifies the elimination of actual sampling. Ohio EPA expects that monitors will remain in service until fugitive sources are eliminated and any potential emergency releases are eliminated.

Response: DOE agrees with the commenter. The IEMP, Revision 4, specifically indicates that air monitoring will remain through 2005. DOE agrees that air monitoring stations (particulate, radon, and direct radiation) will remain in service until fugitive sources are eliminated and any potential emergency releases have been eliminated. DOE has also indicated that air monitoring will continue until all major sources have been removed and all major remediation activities have been completed at the site. Although the IEMP is revised on a two-year cycle, it is reviewed annually and it is anticipated that any remediation schedule adjustments would also be accounted for in the IEMP, Revision 4, annual review to be conducted in the fall of 2005. Prior to the annual review, DOE will submit two letters to EPA Region V – Air and Radiation Division as part of the pre-approval process prior to suspending any environmental monitoring activities and to address the application for approval of demonstrating compliance with National Emission Standards for Hazardous Air Pollutants (NESHAP). OEPA will also be provided a copy of these letters. One letter, to be submitted earlier in 2005, will outline the phased reduction of air monitors based on completion of various project completions while utilizing aspects of the Environmental Regulatory Guide for Radiological Effluent Monitoring and Surveillance guidance and will include the following recommendations:

- At the project completion of the Waste Pits Project, WPTH-2 (the project-specific thorium air monitor) could be removed. The letter will include a color-coded map (Figure 6-1A in updated Section 6) identifying the affected monitor, data summary including basic statistics (minimum, maximum, and average) during the last year of the remediation project, and the most recent data indicating current concentrations. In addition, the letter will evaluate the potential for an emergency condition arising from Waste Pits source materials.

- At the project completion of the Silos Accelerated Waste Retrieval Project, TLD locations 22, 23A, 24, 25, 26, 43, 44, 45, 46, and 47 could be removed. The letter will include a color-coded map (Figure 6-4A in updated Section 6) identifying the affected TLD locations, data table including basic statistics (minimum, maximum, and average) during the last year of the remediation project, and the most recent data indicating current radiation levels. In addition, the letter will include estimated gamma emitting sources onsite. It should be noted that fenceline and background TLD locations would not be affected by this plan.

- At the project completion of both the Waste Pits Project and the Silos Accelerated Waste Retrieval Project, monthly thorium tracking at the site fenceline could be suspended (refer to Comment Response #3) and the following radon monitors could be removed: Silos 1 headspace, Silos 2 headspace, KNE, KNO, KNWA, KSE, KSO, KSWA, KTOP, LP2, Rally Point 4, Bio-Surge Lagoon, T117A, T28A, and WP17A. The letter will include a color-coded map (Figure 6-3A in updated Section 6) identifying the affected monitors, data summaries including basic statistics (minimum, maximum, and average) during the last year of the remediation project, and the most recent data indicating current concentrations. In addition, the letter will evaluate the potential for an emergency condition arising from thorium source materials and radium bearing waste materials. It should be noted that isotopic thorium monitoring would continue at the site fenceline via the quarterly composite air sample analysis.

(Note: Project completion will be defined more specifically in the details letters to be submitted to EPA and OEPA)

The above phased approached is described in the IEMP, Revision 4, and the updated Section 6 includes color-coded maps identifying the monitors that are recommended for removal. It should be noted that it is possible this approach will need to be altered slightly since it might be necessary to relocate/remove an air monitor during remediation efforts due to construction activities. DOE will ensure that EPA and OEPA are contacted to receive approval prior to removal of any air monitor.

The second letter will be submitted later in 2005 and will outline the recommended path forward for removal of the site fenceline monitors. The IEMP Section 6 has been updated to reflect that the removal of the fenceline monitors will be addressed in a separate submittal, as appropriate, to EPA and OEPA. Additionally, the IEMP will be updated to reflect that the annual review of the IEMP, Revision 4, will include more specific information regarding the removal of the fenceline monitors based on EPA approval of the separate submittal. The monitors will remain in place until an approach for reduction is approved by both the EPA and OEPA.

Action: As noted in the response. Section 6 of the IEMP is provided as an attachment to this comment response document. Note that the general text in the above comment response is summarized in Section 6.1.

SUMMARY TABLE

2. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: Summary Table Pg #: 6 Line #: NA Code: C
Original Comment #: 2
Comment: Although NESHAP compliance maybe demonstrated through CAP88 modeling, pending USEPA approval, DOE's elimination of the 17 high-volume air monitoring stations is premature prior to the completion of all remediation projects, OSDF capping, and final restoration.
Response: Refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1.

3. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: Summary Table Pg #: 7 Line #: NA Code: C
Original Comment #: 3
Comment: Silo 3 remediation activities are yet to begin. Monthly thorium analysis at the fenceline must continue, at lease until the completion of the Silo 3 project. Removal of WPTH-2 from service should be based on sampling results and data analysis that indicate airborne thorium is no longer of concern.
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to reflect that monthly analysis will continue until both the Waste Pits Project and the Silos Accelerated Waste Project, including Silo 3 remediation,

are completed. Additionally, refer to Comment Response #1 regarding WPTH-2 project-specific monitor and to the updated Section 6.4.2.1, which is attached.

4. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: Summary Table Pg #: 8 Line #: NA Code: C
Original Comment #: 4
Comment: Ohio EPA would expect DOE to relocate a number of the on-site TLDs, at the completion of AWR, to areas around the treatment facility and around the staging area. The fenceline TLDs must remain in service until sampling results indicate that direct radiation is no longer a concern at the site.
Response: DOE agrees with the comment. It should also be noted that in IEMP, Revision 3, the need to relocate or add TLDs to account for the pending relocation of waste stored in Silos 1 and 2 was anticipated and addressed. The issue was addressed by adding five TLD locations (43, 44, 45, 46, and 47) to the monitoring program as identified in IEMP, Revision 3. DOE agrees that fenceline TLDs must remain in service until sampling results indicate that direct radiation is no longer a concern at the site boundary (currently the site fenceline). Also refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1.

5. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: Summary Table Pg #: 9 Line #: NA Code: C
Original Comment #: 5
Comment: The meteorological monitoring station must remain in service until site restoration is complete.
Response: It is planned that the site meteorological tower will remain in service until completion of all source remediations, which is expected to occur in November 2005. DOE will notify OEPA and EPA prior to removal of the site meteorological tower.
Action: Text in Section 6 pertaining to the meteorological tower has been updated to indicate that DOE will notify OEPA and EPA prior to removal of the site meteorological tower (refer to the updated Section 6.4.2.4, which is attached).

SPECIFIC COMMENTS

6. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 1.2 Pg #: 9 Line #: NA Code: C
Original Specific Comment #: 1
Comment: Since the IEMP will become part of the Comprehensive Legacy Management and Institutional Control Plan, describe how the IEMP will provide support to the mission of the LMICP, include this information in the "Program Objectives and Scope" of the IEMP and include the information in other relevant sections throughout the document.
Response: DOE agrees with the comment. The Comprehensive Legacy Management and Institutional Control Plan will support/define post-closure activities at the Fernald site. Because it is anticipated that the IEMP post-closure objectives and scope will be the same as those identified for cleanup actions on page 1-2, the first sentence in Section 1.2 of the IEMP has been updated to say, "As cleanup actions continue *and post-closure activities are initiated/conducted*, the need for accurate..."
Action: As noted in the response. The required change page to the IEMP (page 1-2) is provided as an attachment to this comment response document.

7. Commenting Organization: Ohio EPA Commenter: DSW
Section #: 1.5.1 and 1.6 Pg #: 1-8 and 1-12 Line #: NA Code: C
Original Specific Comment #: 2
Comment: The last paragraph of section 1.5.1 states that decision makers will be using the IEMP through post-closure and 1.6 states that this revision will be part of the Comprehensive Legacy Management and Institutional Control Plan. The draft Comprehensive Legacy

Management and Institutional Control Plan reviewed by OEPA references the IEMP throughout. Since it is this revision that will be included as part of the Comprehensive Legacy Management and Institutional Control Plan, significant detail of how the IEMP will be incorporated into long term monitoring needs to be included in this revision. OEPA is concerned that the IEMP, as written, will be construed to diminish its role in monitoring to zero as remediation is complete. It should be clearly stated that the role of continued monitoring under the Comprehensive Legacy Management and Institutional Control Plan will be detailed in the IEMP.

Response: As stated in Comment Response #6, it is anticipated that IEMP objectives and scope for post-closure activities will be the same as those that have been identified for cleanup and the text will be thus updated. Additionally, text in Section 1.5 has been updated to state that IEMP and its current role will continue as it is a requirement of the Remedial Design Work Plan for Remedial Actions at Operable Unit 5 (OU5 RDWP) (DOE 1996). The following information from the OU5 RDWP (Section 3.3.9) has been added to Section 1.5:

Additionally it is important to note that monitoring will be conducted following the completion of cleanup as required to assess the continued protectiveness of the remedial actions. The IEMP will specify the type and frequency of environmental monitoring activities to be conducted during remedy implementation, and ultimately, following the cessation of remedial operations as appropriate. The IEMP will delineate the Fernald site's responsibilities for sitewide monitoring of surface water and sediment over the life of the remedy, and ensure that FRLs are achieved at project completion. The IEMP will also serve as the primary vehicle for determining to EPA and OEPA's satisfaction that remedial action objectives for the Great Miami Aquifer have been attained. In addition to these FRL attainment responsibilities, the IEMP will define sitewide remedial monitoring requirements for air.

Action: Text has been added to Section 1.5 as noted in the response. The required change page to the IEMP (page 1-8) is provided as an attachment to this comment response document.

8. Commenting Organization: Ohio EPA Commenter: Geo Trans, Inc.
Section #: 3.0 Pg #: 3-16 Line #: 27 Code: C
Original Specific Comment #: 3

Comment: The text states that modeling shows continuing re-injection will only shorten the groundwater remedy by three years. It indicates these model results provided the main rationale for stopping re-injection. On page 3-14, paragraph 3, however, the text states that modeling showed that adding re-injection wells (along with other actions) would shorten the cleanup time from 27 years to 10 years. DOE should provide some clarification in the text regarding why the more recent modeling results were used to drive the decision to stop re-injection when the previous modeling had demonstrated a clear advantage to pursuing a re-injection component to the remedy.

Response: Modeling results contributed to the decision to stop re-injection, but as explained in the plan other factors such as disposal strategies for the existing AWWT treatment facility as well as treatment facility operational considerations also drove the decision.

Cleanup time reductions, attributed to re-injection, between previous and current groundwater modeling results differ by four years. The statement on page 3-14 refers to groundwater modeling reported in the OU5 Baseline Remedial Strategy Report using the SWIFT Groundwater Model (DOE 1997). Shortening the cleanup time from 27 to 10 years is dependent upon "other actions" also taking place (i.e., accelerated removal of source terms) as well as the use of re-injection. As presented in Appendix F of the BRSR, re-injection alone was predicted to reduce the cleanup time by seven years. VAM3DF Modeling results reported in the Comprehensive Groundwater Strategy Report (DOE 2003) predict a reduction in cleanup time of three years. This results in a difference of four years, not the 17 years implied in the comment.

More recent modeling results are being used to drive the re-injection decision because they are believed to be more accurate than previous modeling results. Development and improvements associated with the current VAM3DF Model have been documented in Section 6 of Integration of Data Fusion Modeling (DFM) With VAM3DF Contaminant Transport Code (HydroGeoLogic 1999); in Section 3 of Design for Remediation of the Great Miami Aquifer South Field Phase II Module (DOE 2002); and in Appendix A of the Comprehensive Groundwater Strategy Report (DOE 2003).

Action: Text has been revised to explain the decision to stop re-injection. The required change page to the IEMP (page 3-16) is provided as an attachment to this comment response document.

9. Commenting Organization: Ohio EPA Commenter: Geo Trans, Inc.
Section #: 3.0 Pg #: 3-17 Line #: 12 Code: C
Original Specific Comment #: 4

Comment: The Groundwater Evaluation and Field Verification Report indicates that only 1300 gpm out of a total treatment capacity of 1800 gpm is needed for treatment. The text should discuss why the surplus 500 gpm of capacity is not considered as a potential source of water for re-injection via the outfall ditch.

Response: The surplus 500-gpm capacity is not being considered as a potential source of water for re-injection via the outfall ditch because it may be needed to treat storm water. Water treatment priorities for the Fernald site are defined in Section 5.2 of the Operations and Maintenance Master Plan for Aquifer Restoration and Wastewater Treatment (OMMP), Revision 2, Draft.

Action: Text in Section 3 has been updated that includes an explanation of why the 500 gpm of capacity is not considered as a potential source of water for re-injection via the outfall ditch. The required change page to the IEMP (page 3-17) is provided as an attachment to this comment response document.

10. Commenting Organization: Ohio EPA Commenter: Geo Trans, Inc.
Section #: 3.0 Pg #: 3-20 Line #: 21 Code: C
Original Specific Comment #: 5

Comment: The 10-year, uranium-based restoration footprint should be revised to reflect the discontinuation of well-based re-injection.

Response: DOE agrees with the comment.

Action: The 10-year, uranium-based restoration footprint has been revised to reflect the discontinuation of well-based re-injection and the necessary pages/figures in Section 3 and Appendix A have been updated.

11. Commenting Organization: Ohio EPA Commenter: Geo Trans, Inc.
Section #: 3.0 Pg #: 3-62 Line #: 17 Code: C
Original Specific Comment #: 6

Comment: Revision 3 of the IEMP included a discussion of how the groundwater model was adjusted from previous models to provide better point concentration predictions. The text noted that at the time Revision 3 was being prepared in 2002, the predictions made by the revised model lacked sufficient field measurements to determine if the model improvements were successful. Additional data has been collected since the preparation of Revision 3 and these point comparisons now can be made. The text should be revised to include a discussion of how closely the current model matches measured concentrations and a summary of any uncertainties in predictions made by the current model.

Response: Information concerning the updated point concentration modeling predictions was presented in Attachment A.1 of the 2003 Site Environmental Report in the form of total uranium concentration versus time plots. A plot is presented for each extraction well that shows the concentration data, modeled concentrations, the 95% upper confidence limit, and associated regression trend. DOE plans to continue updating these plots annually.

Action: No action required.

12. Commenting Organization: Ohio EPA Commenter: DSW
Section #: 4-1 Pg #: 4-1 Line #: NA Code: C
Original Specific Comment #: 7

Comment: Since the IEMP will become part of the Comprehensive Legacy Management and Institutional Control Plan, how will the IEMP support the mission of the Comprehensive Legacy Management and Institutional Control Plan? In additional, LMICP should be included in this section of the IEMP.

Response: Refer to Comment Responses #6 and #7. Additionally, information has been added to Section 4.2.2 to indicate that IEMP will continue to be the vehicle used to describe environmental monitoring/reporting requirements during post-closure. Section 4.2.2 specifically provides the summary of regulatory drivers, compliance agreements, and DOE Orders found to govern the monitoring scope and reporting requirements for surface water and treated effluent. The following bullet has been added to this section:

- Per the CERCLA Remedial Design Work Plan for Remedial Actions at Operable Unit 5, monitoring will be conducted following the completion of cleanup as required to assess the continued protectiveness of the remedial actions. The IEMP will specify the type and frequency of environmental monitoring activities to be conducted during remedy implementation, and ultimately, following the cessation of remedial operations as appropriate. The IEMP will delineate the Fernald site's responsibilities for sitewide monitoring of surface water and sediment over the life of the remedy, and ensure that FRLs are achieved at project completion.

Similar bullets have been added to the respective medium sections (i.e., 3.2.2, 4.2.2, 5.2.2, and 6.2.2).

Action: As noted in the response. The required change pages to the IEMP (pages 3-4, 4-2, 5-3, and 6-4) are provided as an attachment to this comment response document.

13. Commenting Organization: Ohio EPA Commenter: DSW
Section #: 4.4.2.3 Pg #: 4-12 Line #: NA Code: C
Original Specific Comment #: 8

Comment: It is stated that in 2005 and 2006, isotopic thorium monitoring will be removed based on the completion of the waste pit excavation in late 2004. It is still unknown whether there may be thorium in perched water areas, small pockets not previously exposed to weathering, or other sources from the waste pits of which we may not be aware. It is premature to discontinue monitoring at this time. Continued monitoring at least through 2005 and preferably through 2006 as well is recommended. At small cost, this will add considerably to public confidence at closure that indeed the waste pits have been successfully remediated.

Response: DOE will continue monitoring of isotopic thorium at SWP-02 and SWD-03 (as was performed in IEMP, Revision 3). Corresponding text and tables in the IEMP have been revised as necessary.

Action: As noted in the response. The required change pages to the IEMP (page 4-12 and Table 4-3) are provided as an attachment to this comment response document.

14. Commenting Organization: Ohio EPA Commenter: DSW
Section #: Table 4-2 Pg #: 4-8 Line #: NA Code: C
Original Specific Comment #: 9

Comment: Although Attachment A is included supporting the background statistics, it would be helpful to the reader to include a column in this table with the number of analyses for each constituent as has been done in earliest revision, particularly since background values are changing with this section.

Response: DOE has updated Table 4-2 with the number of analyses as requested by OEPA.

Action: As noted in the response. The required change pages to the IEMP (Table 4-2) are provided as an attachment to this comment response document.

15. Commenting Organization: Ohio EPA Commenter: DSW
Section #: 5 Pg #: Global Line #: NA Code: C
Original Specific Comment #: 10
Comment: Since the Stream Corridors Project is basically replacing the onsite IEMP sediment sampling, additional information about the Stream Corridors Project should be included. It is understood that this breaches the delineation between projects specific sampling and the IEMP program, but this appears to be a special case as the project specific sampling is usurping all onsite IEMP sediment sampling. At the very least sampling locations, schedule and constituents under the project should be listed. This allows the reader to further understand why the IEMP sediment sampling onsite will be addressed under the Stream Corridors Project.
Response: The general analytical constituents or constituent groups to be included in the project-specific excavation control and certification sampling programs are already included under Section 5.4.2, Design Considerations. As requested, information concerning the anticipated schedule and sampling design density has been added to this section.
Action: Section 5.4.2 has been updated with the approximate sampling schedule and information concerning sampling design density. The required change page to the IEMP (page 5-5) is provided as an attachment to this comment response document.

16. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.1 Pg #: 6-1, 2 Line #: NA Code: C
Original Specific Comment #: 11
Comment: Many onsite activities apparently will continue beyond December 2005. DOE must provide a plan documenting that fugitive sources are no longer contributing to dose and that fenceline monitors would not be necessary to evaluate an upset and/or emergency conditions at the site.
Response: Refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1. Section 6 of the IEMP is provided as an attachment to this comment response document.

17. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.2.2 Pg #: 6-3 Line #: NA Code: C
Original Specific Comment #: 12
Comment: Proposed 10 CFR 834 is used in the remediation documents for the silos and waste pit projects as standards that must be met by the projects and the site.
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to include 10 CFR 834 as a remediation source document (updated through out Section 6, which is attached).

18. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.1 Pg #: 6-12 Line #: NA Code: C
Original Specific Comment #: 13
Comment: An additional primary program expectations are to keep exposures ALARA.
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to include the ALARA philosophy as a program expectation (updated through out Section 6, which is attached).

19. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.1 Pg #: 6-16 Line #: NA Code: C
Original Specific Comment #: 14
Comment: Monthly thorium analysis should be continued at the fence line monitoring stations until all thorium sources have been properly disposed.
Response: DOE agrees with the comment. Refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1. Section 6 of the IEMP is provided as an attachment to this comment response document.

20. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.2 Pg #: 6-18 Line #: NA Code: C
Original Specific Comment #: 15
Comment: The monitors are also used to assess compliance with 10 CFR 834.
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to include the 0.5 pCi/L above background at the site fenceline, 10 CFR 834 limit (updated through out Section 6, which is attached).

21. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.2 Pg #: 6-18 Line #: NA Code: C
Original Specific Comment #: 16
Comment: Fenceline radon monitors and some onsite radon monitors must remain in place or moved to more appropriate locations until the Silos Project is complete and radium bearing wastes have been disposed.
Response: DOE agrees with the comment. It should be noted that in IEMP, Revision 3, the need to relocate or add radon monitoring locations to account for the pending relocation, treatment, or storage of radium-bearing waste was anticipated and addressed. This issue was addressed by adding five radon monitoring locations (KNO, KSO, LP2, T117, and PR1) to the radon monitoring program as identified in IEMP, Revision 3. DOE agrees that fenceline radon monitors must remain in place until radium-bearing wastes have been properly disposed. Also refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1. Section 6 of the IEMP is provided as an attachment to this comment response document.

22. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.3 Pg #: 6-21 Line #: NA Code: C
Original Specific Comment #: 17
Comment: A comprehensive plan must be submitted prior to the removal of TLD locations. This plan needs to include inventories of gamma emitting wastes and justification for removal of TLD locations.
Response: DOE agrees with the comment. Refer to Comment Response #1.
Action: Refer to Comment Response #1/Action #1. Section 6 of the IEMP is provided as an attachment to this comment response document.

23. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.4.2.4 Pg #: 6-23 Line #: NA Code: C
Original Specific Comment #: 18
Comment: The meteorological monitoring program must remain in service until remediation activities are complete. This information is necessary to track sources of potential contamination and during upset/emergency conditions.
Response: Refer to Comment Response #5.
Action: Refer to Action #5.

24. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.6.1.1 Pg #: 6-34 Line #: NA Code: C
Original Specific Comment #: 19
Comment: An additional section evaluation ALARA must be included.
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to include a data evaluation section regarding the ALARA philosophy (updated through out Section 6, which is attached).

25. Commenting Organization: Ohio EPA Commenter: OFFO
Section #: 6.6.1.2 Pg #: 6-37 Line #: NA Code: C
Original Specific Comment #: 20
Comment: An additional question to include is, are radon concentrations below the limits proposed in 10 CFR 834?
Response: DOE agrees with the comment.
Action: Text in Section 6 has been updated to include the question, "Are the radon concentrations below 0.5 pCi/L above background at the site fenceline?"

26. Commenting Organization: Ohio EPA Commenter: DSW
Section #: D.4.1.1 Pg #: D-8 Line #: NA Code: C
Original Specific Comment #: 21
Comment: It is stated that the reduction of Sloan's crayfish is attributable to increased competition from *Orconectes rusticus*. This is speculation. Other environmental factors (e.g., nutrient loads, siltation, removal of overstory, etc.) could be responsible for decreases in Sloan's crayfish, and incidentally, may favor *Orconectes rusticus*. The environmental factors that may influence the population of Sloan's crayfish are within the control of site and therefore continued monitoring of the crayfish is warranted.
Response: The likelihood that competition with *Orconectes rusticus* is causing the slight reduction in the Sloan's crayfish population has been discussed by Dr. F. Lee St. John in both the 1999 and 2001 survey reports. Dr. St. John stated in both reports that site conditions do not appear to be impacting the Sloan's population and that *Orconectes rusticus* tends to out compete other species of crayfish over time.
Action: No action required.

27. Commenting Organization: Ohio EPA Commenter: DSW
Section #: D.4.1.1 Pg #: D-8 Line #: NA Code: C
Original Specific Comment #: 22
Comment: This states that no additional surveys of Sloan's crayfish will occur, only measurements for turbidity if remediation or restoration occurs within the northern drainage ditch watershed. There should be additional monitoring as activities that may affect the crayfish population will be occurring in the Paddys Run watershed that contains the Sloan's crayfish. At least one and preferably two additional surveys should be conducted in the reach that has Sloan's crayfish.
Response: The multiple surveys that have been conducted on Paddys Run Stream have all documented that there is a well-established and healthy population of Sloan's crayfish in the northern reach of Paddys Run on Fernald property. It has also been documented that site conditions appear to be having little impact on the Sloan's crayfish population. All parties have agreed that stream corridor restoration (which includes additional plant installations, wetlands creation and the expansion of floodplain acreage) will all contribute to the health of Paddys Run and should improve conditions for the Sloan's crayfish. There does not seem to be a significant benefit associated with conducting additional survey work for Sloan's crayfish. We are proposing to manage the Sloan's crayfish in the same manner we are managing the Federally endangered Indiana Bat. Although we are not performing additional survey work, we will continue to protect the northern portion of Paddys Run, improve habitat as described above, and minimize and mitigate impacts the may result from any required remediation.
Action: If excavation activities occur within the watershed of the northern reaches of Paddys Run, visual observations of turbidity in the stream will be resumed, as has been the practice in the past. In addition, if disturbance of Paddys Run immediately south of the trestle is required for remediation, then upstream relocation of any Sloan's crayfish species that can be collected will occur per the Sloan's crayfish management plan.

28. Commenting Organization: Ohio EPA Commenter: DSW
Section #: D.4.5 Pg #: D-12 Line #: NA Code: C
Original Specific Comment #: 23
Comment: Table D-2 has been eliminated. Please include a table that lists the planned monitoring activities for the scheduled life of the document prior to the next revision.
Response: There are no further monitoring activities planned for the Sloan's crayfish, unless visual observations of turbidity are required due to excavation within the stream watershed.
Action: No action required.

29. Commenting Organization: Ohio EPA Commenter: DSW
Section #: D.3 Pg #: D-7 Line #: NA Code: C
Original Specific Comment #: 24
Comment: The language that described the surveying of Sloan's crayfish every three years has been removed from the monitoring section. Please reinstate a statement that monitoring will continue per previous comments.
Response: Refer to Comment Response #27.
Action: No action required.

ATTACHMENT A

CHANGE PAGES FOR THE INTEGRATED ENVIRONMENTAL MONITORING PLAN (IEMP) REV. 4, FINAL

ATTACHMENT A

CHANGE PAGE CROSS REFERENCE LIST

Sections	Change Pages	Reason for Update
Cover, Spine & Title Pg.		To reflect Final Transmittal Status
Table of Contents	i through ix	Necessary due to Change Page Updates
1	1-1 and 1-2; 1-7 and 1-8	Comment Responses/Actions #6 and #7
3	3-3 through 3-6; 3-11 through 3-22 3-37 through 3-40 3-45 through 3-46	Comment Responses/Actions #8, #9, #10, and #12
4	4-1 through 4-4; 4-7 through 4-10; 4-11 through 4-16	Comment Responses/Actions #12, #13, #14
5	5-1 through 5-8 5-15 and 5-16	Comment Responses/Actions #12, #15
6	All	Comment Response/Actions #1 through #5, #12, #16 through #25
Appendix A	Figures A-1 through A-19	Comment Response/Actions #10
Appendix C	C-1 and C-2; C-15 and C-16	Comment Responses/Actions #1

Note: Change pages are double-sided.